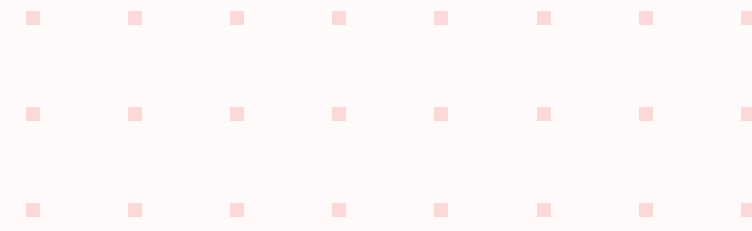
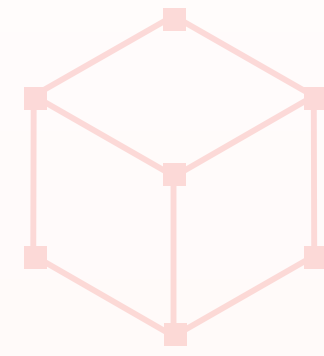


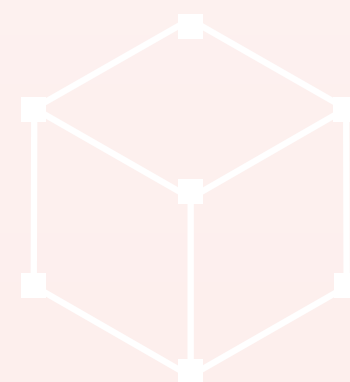
EBOOK



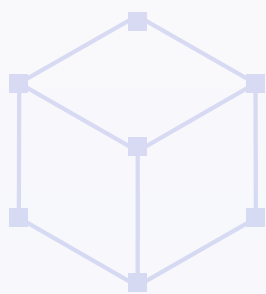
Driving Innovation, Operational Agility, and Enhanced Consumer Engagement in the CPG Industry

Leveraging Data and AI Analytics to Transform CPG Strategies for the Modern Consumer

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Foundational Pillars of the CPG Industry



EVOLUTION OF KEY PRODUCT CATEGORIES



FOOD AND BEVERAGES

- Processed foods
- Snacks
- Dairy products
- Alcoholic and non-alcoholic beverages



PERSONAL CARE AND COSMETICS

- Beauty products
- Skincare
- Hair care
- Hygiene products



HOUSEHOLD PRODUCTS

- Cleaning agents
- Detergents
- Home maintenance



OVER-THE-COUNTER (OTC) DRUGS

- Non-prescription medications
- Supplements
- Health and wellness products

Sustainable
product innovations

Predicted
consumer trends

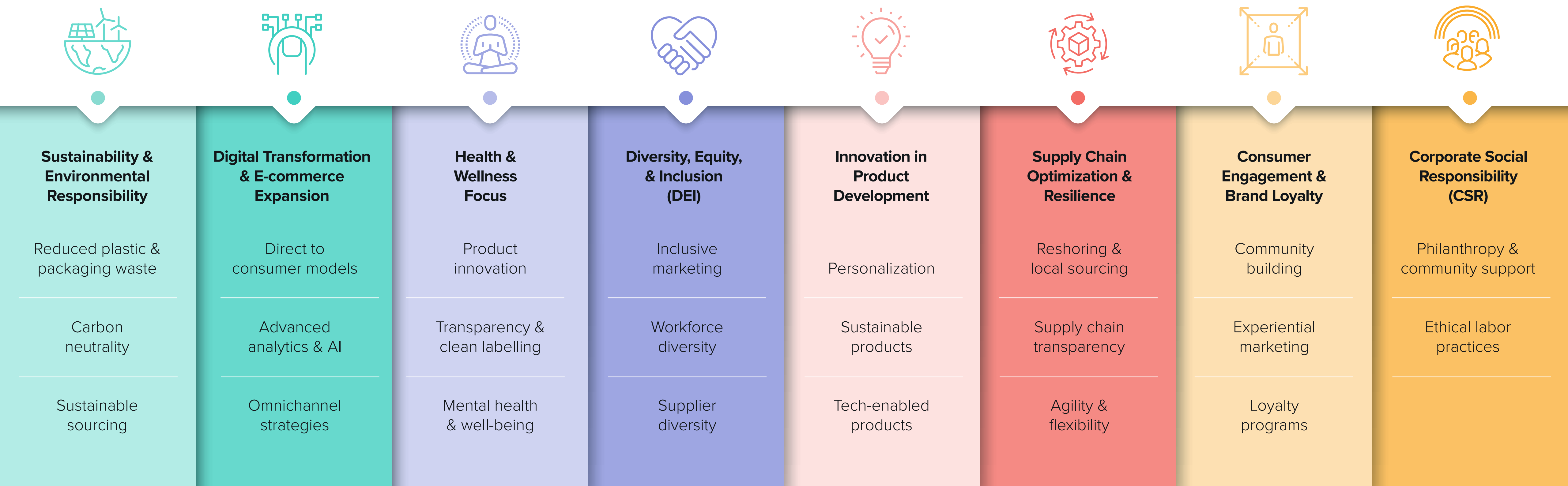
Optimized
supply chains

Personalized
experiences

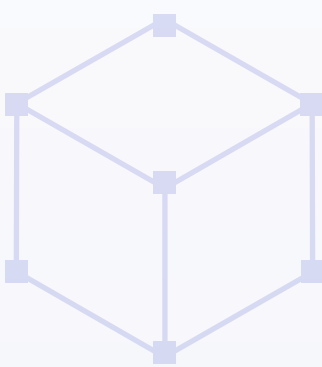
Strategic Industry Priorities

The consumer-packaged goods (CPG) industry is undergoing significant transformation as companies respond to changing consumer preferences, technological advancements, and global challenges.

KEY INDUSTRY INITIATIVES



Industry Shifts and Opportunities



The evolving dynamics of the CPG industry and the potential for growth and innovation:



E-COMMERCE GROWTH

The rapid rise of online shopping is pushing companies to innovate through digital channels and direct-to-consumer strategies



SUSTAINABILITY

Rising consumer demand for eco-friendly products and sustainability is driving innovation in materials, sourcing, and supply chain transparency



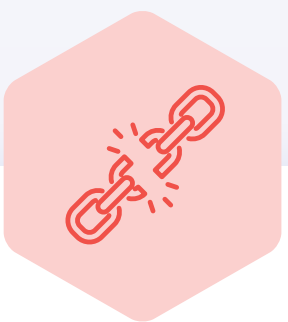
HEALTH AND WELLNESS

The surge in health and wellness demand is moving CPG toward organic, natural, and clean-label products to meet evolving consumer expectations



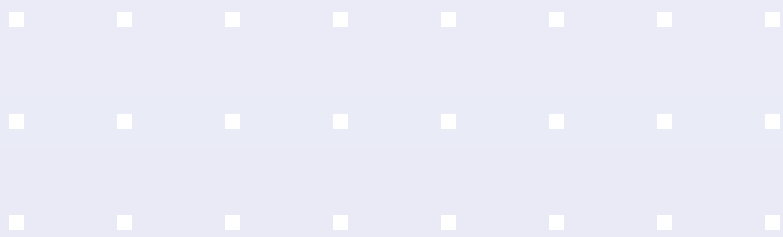
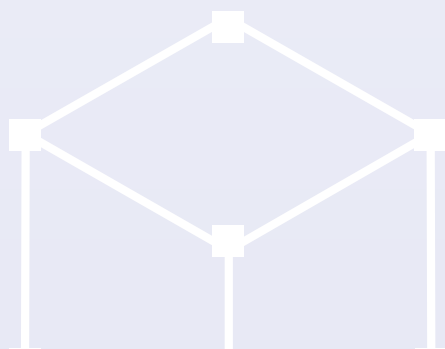
INNOVATION AND PERSONALIZATION

The push for personalization is driving creation of tailored products and experiences that resonate with individual consumers



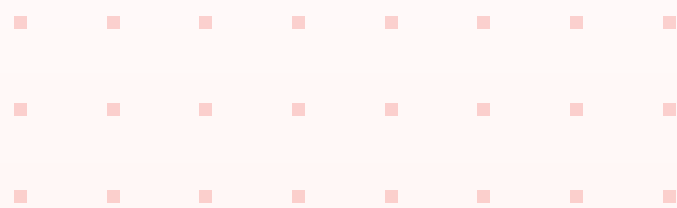
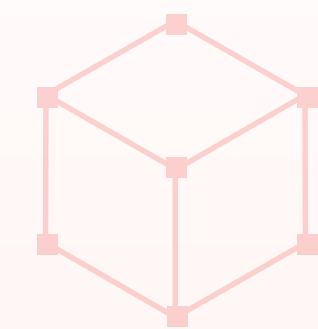
SUPPLY CHAIN DISRUPTIONS

Global supply chain disruptions, raw material shortages, and rising costs are compelling companies to navigate geopolitical and environmental challenges with agility



Catalysts Shaping CPG Industry Growth

Emerging consumer trends driving transformation and innovation:



DIRECT-TO-CUSTOMER (DTC) MODELS

CPG companies are increasingly selling directly to consumers online, cutting out middlemen and building closer relationships with customers



PREMIUMIZATION

Consumers are willing to pay more for premium, high-quality, and ethically sourced products, leading to the growth of premium segments within the market



PERSONALIZATION

Customized products, driven by AI and data analytics, are a growing trend, with companies offering tailored skincare, nutrition, and more



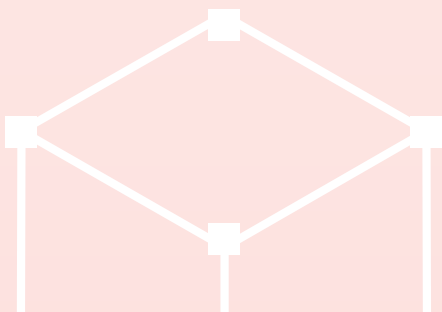
HEALTH & WELLNESS

Products that promote physical, mental, and nutritional well-being, including clean-label, functional, organic, and personalized options



SUSTAINABILITY

Eco-friendly products with responsibly sourced ingredients, innovative minimal-waste packaging, and brands championing environmental stewardship and inclusivity



Direct-to-Customer Models

BUILDING DIRECT-TO-CONSUMER (DTC) CHANNELS

E-commerce platforms and mobile apps, combined with leveraging social media and influencer marketing

SUBSCRIPTION MODELS

Subscription-based services for convenience and customer retention (e.g., meal kits, cosmetics)

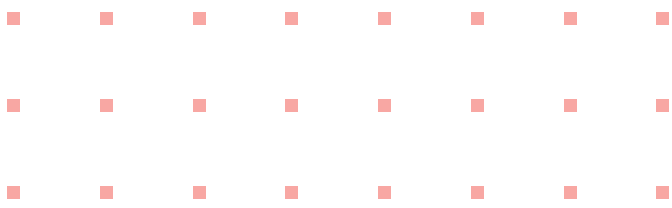
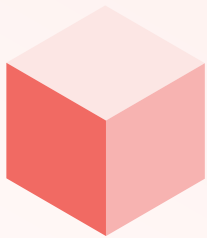
DATA-DRIVEN CONSUMER INSIGHTS

Using data analytics from DTC interactions to understand consumer preferences and tailor offerings

DATA	DATA CHALLENGES	AI ANALYTICS INSIGHTS
■ Provides insights into customer preferences, purchasing patterns, and engagement behaviors ■ Facilitates dynamic pricing and inventory optimization for a seamless customer experience ■ Powers targeted marketing campaigns through real-time customer interaction data	■ Integrate data from multiple channels (e-commerce platforms, CRM systems, and social media) to provide a unified view of the customer ■ Reduce the time-to-insight by avoiding the need for complex ETL processes for DTC analytics	■ Customer lifetime value predictions ■ Conversion rate optimization insights ■ Real-time customer segmentation and personalization recommendations ■ Optimal delivery and fulfillment strategies



Enable direct customer engagement, boosting loyalty and personalized experiences and offer recurring services to enhance convenience, retention, and predictable revenue.



Premiumization

SUPERIOR INGREDIENTS & CRAFTSMANSHIP

Sourcing premium, organic, or ethically sourced ingredients and highlighting exclusive offerings

LUXURY BRANDING & PACKAGING

Investing in sophisticated, eco-friendly packaging and refined branding to reflect product quality

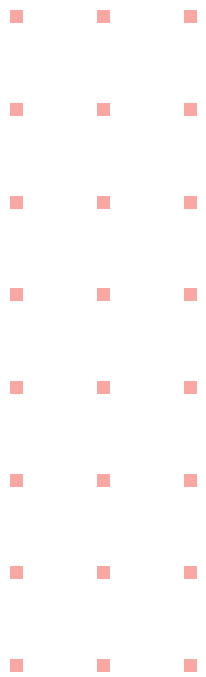
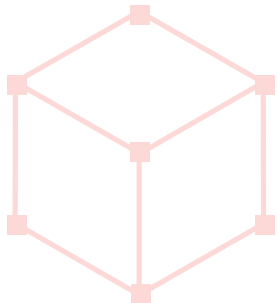
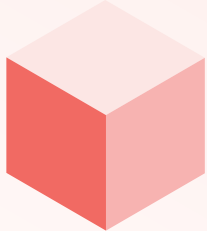
STORYTELLING & BRAND VALUES

Creating compelling narratives around heritage, craftsmanship, or sustainability to justify premium pricing



Use ethically sourced, high-quality ingredients, eco-friendly luxury packaging, and compelling storytelling to enhance perceived value and justify premium pricing.

DATA	DATA CHALLENGES	AI ANALYTICS INSIGHTS
- Identifies trends in premium product demand through market and customer behavior analysis - Enables product quality tracking by analyzing supply chain data - Supports storytelling and marketing strategies with insights into consumer values and preferences	- Centralize data from suppliers, R&D, and marketing to ensure premium-quality product positioning - Enhance transparency by combining sourcing, certification, and manufacturing data	- Emerging trends in consumer preferences for premium ingredients or packaging - Price elasticity insights to optimize pricing for premium products - Sentiment analysis on premium product perception - Supply chain risk analysis for high-quality ingredient sourcing



Personalization

AI AND DATA ANALYTICS

Using AI-driven insights to offer custom products

PERSONALIZED PRODUCTS

Offering consumers the ability to personalize products, such as tailored skincare formulas or mix-and-match food options

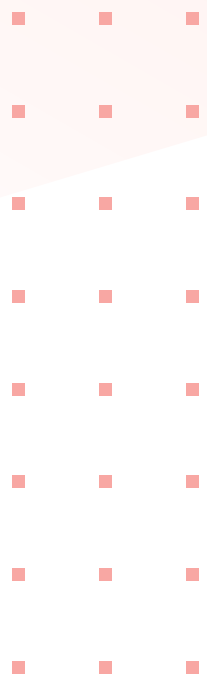
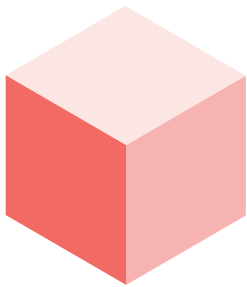
OMNICHANNEL INTEGRATION

Providing consistent personalized experiences across online and offline touchpoints using integrated customer data

DATA	DATA CHALLENGES	AI ANALYTICS INSIGHTS
■ Drives product customization by analyzing individual consumer profiles and preferences ■ Supports innovation through feedback loops from consumer behavior and market data ■ Enhances cross-channel personalization for marketing and product recommendations	■ Unify diverse data sources (e.g., customer profiles, social media, and purchase history) for holistic personalization ■ Speed up R&D processes by integrating data from experiments, trends, and consumer insights	■ Personalized product recommendations ■ Innovation pipeline insights from consumer feedback and market trends ■ Effectiveness of cross-channel campaigns ■ Optimal product bundling or customization options



Use AI and data analytics to drive tailored products, empowering consumers to customize while omnichannel integration ensures consistent, personalized experiences, boosting satisfaction and loyalty.



Health & Wellness

DEVELOPMENT OF FUNCTIONAL FOODS AND BEVERAGES

Products that promote health benefits, such as immune-boosting ingredients, probiotics, or plant-based proteins

CLEAN LABEL MOVEMENT

Simplifying ingredient lists and offering transparency in sourcing and manufacturing processes

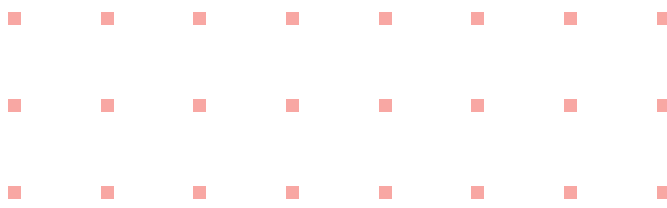
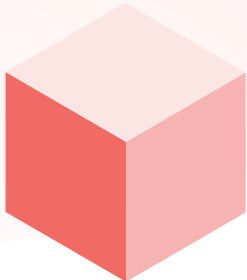
TARGETING EMERGING WELLNESS TRENDS

Innovating in categories like mental health (e.g., adaptogens) or holistic wellness (e.g., low-calorie snacks, sugar-free beverages)



Focus on health and wellness by offering functional foods, transparent clean labels, and innovative products targeting mental and holistic health trends.

DATA	DATA CHALLENGES	AI ANALYTICS INSIGHTS
- Identifies consumer health trends and preferences for functional ingredients or clean labels - Tracks regulatory compliance data for health-related claims - Drives innovation in wellness-focused products through consumer feedback and market demand analysis	- Seamlessly integrate market research, clinical data, and regulatory compliance information - Reduce R&D cycles by providing a single view of data related to health product innovation	- Demand forecasting for functional foods and beverages - Ingredient optimization insights for health benefits - Customer sentiment analysis on health-related claims and clean labels - Emerging health and wellness trends by demographic or region



Sustainability

SUSTAINABLE PRODUCTS

Products with reduced environmental impact

NET-ZERO GOALS

Energy-efficient operations, reduced emissions, and sourcing renewable energy

CIRCULAR ECONOMY

Closed-loop systems for packaging and materials, enabling recycling and reuse

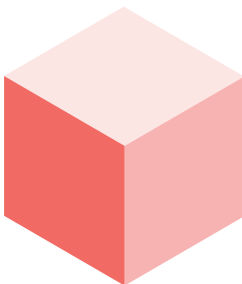
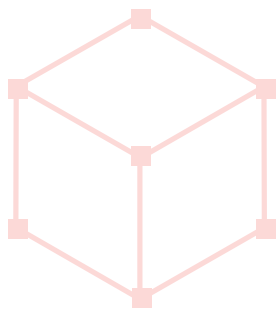
SUSTAINABLE & ETHICAL SOURCING

Partnering with fair-trade suppliers & reducing reliance on non-renewable resources

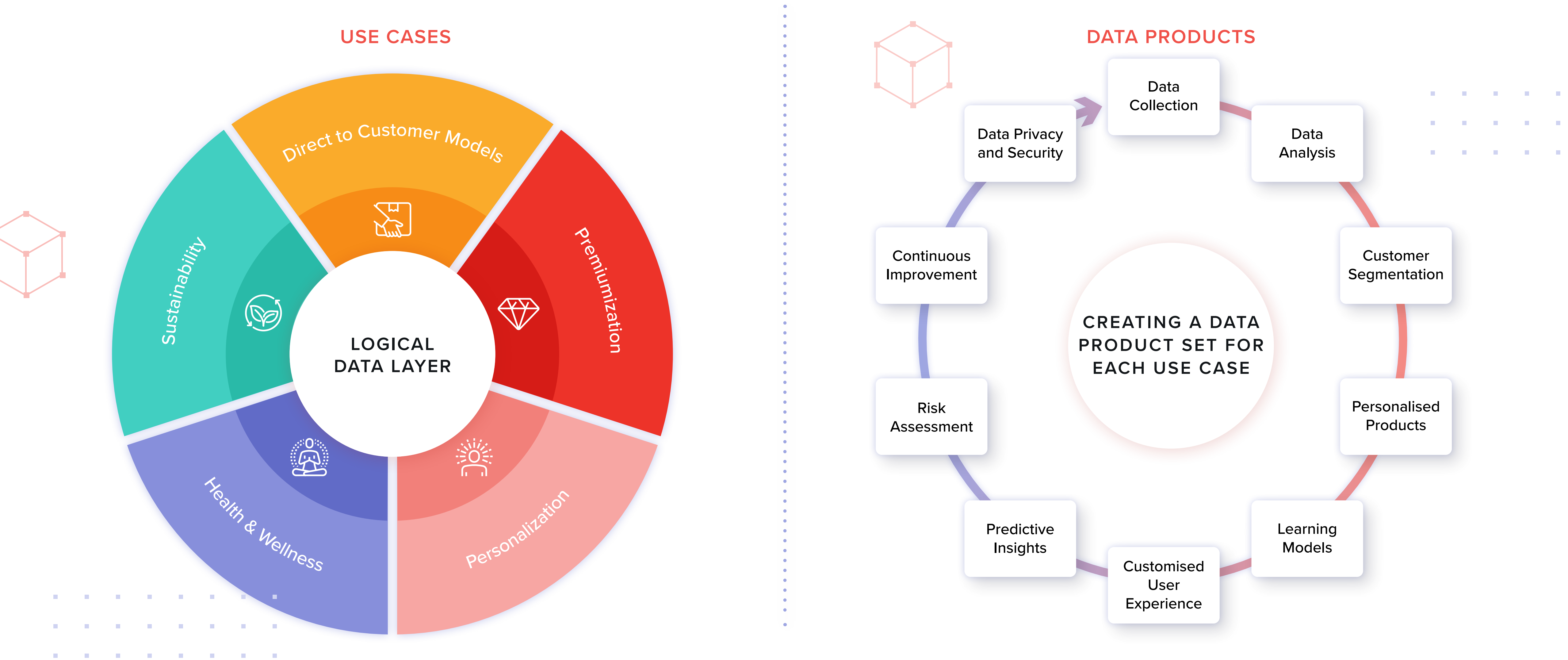


Drive sustainability with eco-friendly products, net-zero operations, circular packaging systems, and ethical sourcing to reduce environmental impact.

DATA	DATA CHALLENGES	AI ANALYTICS INSIGHTS
■ Tracks carbon footprints, energy usage, and waste metrics to achieve sustainability goals ■ Provides insights into consumer preferences for sustainable and ethical products ■ Enhances supply chain visibility for sourcing and production sustainability	■ Consolidate data from supply chain, operations, and consumer sentiment to track sustainability metrics in real time ■ Facilitate compliance reporting by integrating data from regulatory bodies, suppliers, and internal systems. ■ Reduce the time-to-insight by avoiding the need for complex ETL processes for DTC analytics	■ Carbon footprint reduction opportunities in operations ■ Consumer preferences for sustainable packaging and eco-friendly products ■ Circular economy optimization insights for material reuse Predictive analytics for meeting sustainability compliance goals

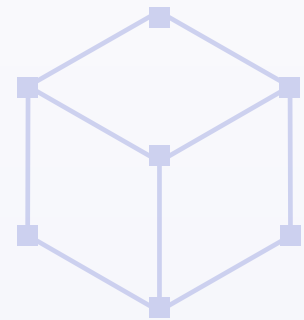


Top Use Cases in the CPG Industry – the Denodo Way



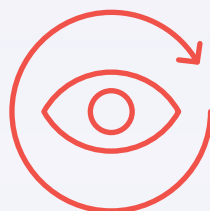
The Denodo End-to-End Process

From data democratization & self-service to GenAI access & insights to data products and CPG use case fulfillment



DEMOCRATIZED
DATA

1



GAIN
INSIGHTS

2



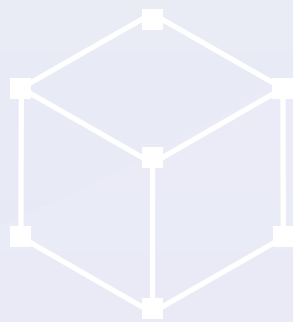
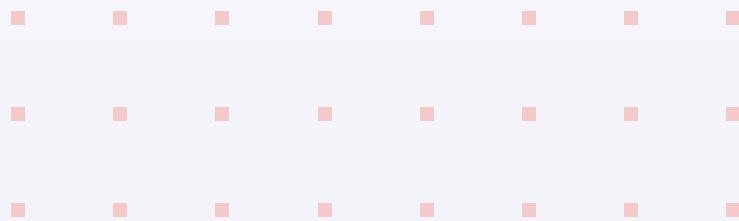
CREATE DATA
PRODUCTS

3



APPLY TO EACH
CPG USE CASE

4

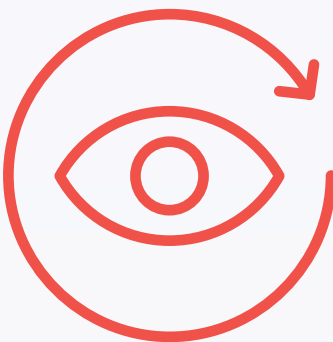


The Denodo End-to-End Process: Spotlight on Gaining Insights

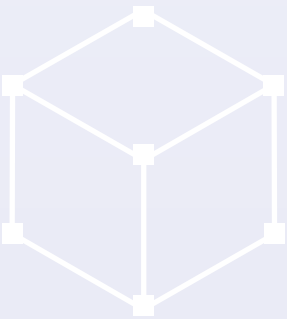
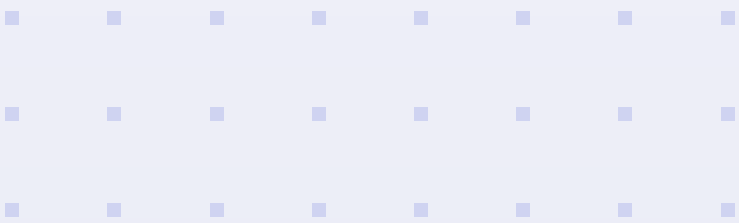
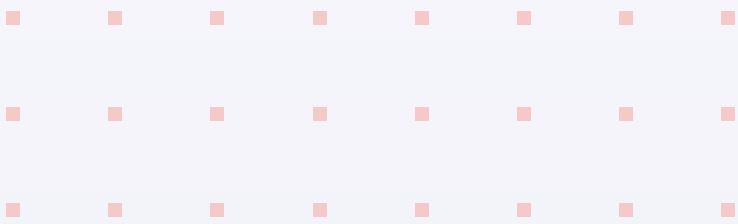
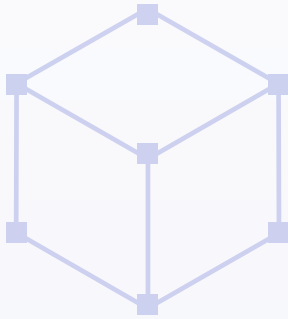
Step 2 in the **Denodo End-to-End Process, Gaining Insights**, is accelerated and enhanced by generative AI (GenAI).

The Denodo Platform, with its logical approach to managing data, provides **AI-ready data** from across the organization; data that is governed by each organization, authoritative, and accurate, and data that is delivered to an AI application in real-time, and in an actionable format.

With a developer-friendly AI SDK and full support for advanced AI frameworks like retrieval augmented generation (RAG), the Denodo Platform makes AI integration smooth and efficient, enabling CPG companies to gain faster insights, automate tasks, and cut costs, all while remaining secure and compliant.

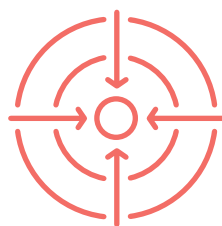


**GAIN
INSIGHTS**



Customer 1: DTC Transformation

Achieving direct-to-consumer operations with data-driven precision



CHALLENGES	SOLUTION	RESULTS
- Fragmented data - Limited personalization - Operational complexity hindered seamless inventory - Fulfillment - Sustainability tracking	Adopting a Logical Data Management Platform: - Unified data - Enabled AI-driven insights - Supported real-time analytics and personalized marketing - Advanced sustainability tracking	- Increased customer satisfaction and order values - Improved operational efficiency with real-time insights, and stronger revenues and customer relationships



THE COMPANY

A global leader in the food and flavor industry specializing in seasonings, spices, and flavor solutions

Serves both retail and foodservice markets

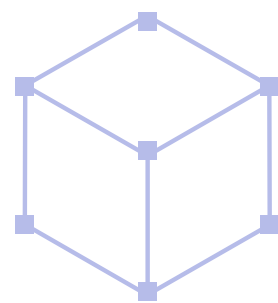
Offers innovative products tailored to evolving consumer tastes, including health-conscious and sustainability-focused offerings

Renowned for its commitment to quality, innovation, and customer satisfaction.

Leverages data-driven strategies to adapt to changing market dynamics and consumer expectations.

Customer 2: DTC Transformation

Achieving advanced personalization and adaptive retail strategies



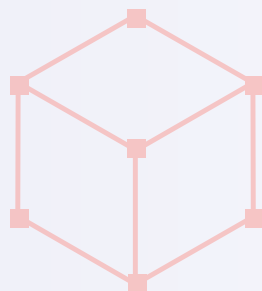
THE COMPANY

A global leader in retail, offering a wide range of products including groceries, household goods, apparel, and electronics

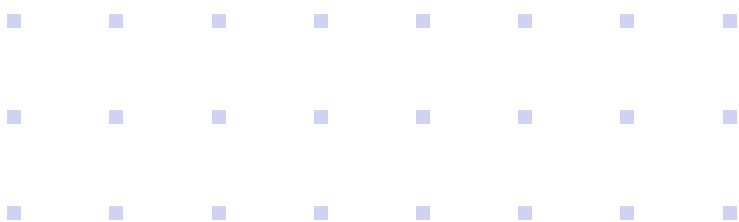
Operates through both physical stores and e-commerce platforms, serving millions of customers daily

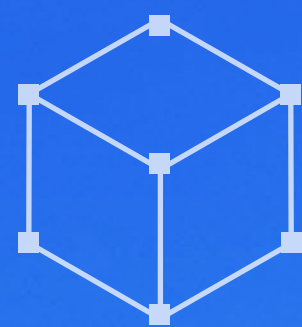
Known for its commitment to affordability, convenience, and innovation

Leverages data-driven insights to optimize supply chains and personalize customer experiences



CHALLENGES	SOLUTION	RESULTS
■ Need for advanced personalization and adaptive retail strategies to meet customer demands for tailored recommendations ■ Seamless shopping experiences ■ Adaptive inventory management	■ Utilized advanced data analytics, AI, and IoT technologies to integrate customer data ■ Enable personalized recommendations ■ Optimize inventory ■ Create seamless omnichannel shopping experiences	■ Personalization and adaptive retail boosted online conversions ■ Reduced stockouts ■ Increased sales ■ Improved customer loyalty ■ Enhanced operational efficiency through IoT technologies





KEY TAKEAWAYS



Build strong customer connections through personalized e-commerce, subscription models, and omnichannel experiences powered by AI and integrated data.

Enhance product value with superior ingredients, luxury branding, and compelling storytelling to meet consumer demand for high-quality, exclusive offerings.

Use AI and data-driven insights to **create tailored products** and deliver seamless, consistent experiences across all customer touchpoints, enhancing loyalty and satisfaction.

Cater to evolving wellness trends with functional foods, transparent clean labels, and innovative products targeting holistic and mental health.

Drive environmental responsibility through sustainable products, circular economies, net-zero goals, and ethical sourcing practices.

Address data silos, governance complexities, and real-time processing issues by leveraging logical data management for unified access, centralized governance, and AI-driven actionable insights.



Denodo is a leader in data management. The award-winning Denodo Platform is the leading logical data management platform for delivering data in the language of business, at the speed of business, for all data-related initiatives across the organization. Realizing more than 400% ROI and millions of dollars in benefits, Denodo's customers across enterprises in 30+ industries all over the world have received payback in less than six months.

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